Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

	)	
In the Matter of	)	
Revitalization of the AM Radio Service	)	
Second Further Notice of Proposed Rule	)	MB Docket No. 13-249
Making	)	

To: The Commission

REPLY COMMENTS OF COMMUNICATIONS TECHNOLOGIES, INC.

Communications Technologies, Inc. (CTI), pursuant to the FCC Rule Section 1.415, submits its Reply Comments to the above captioned Second Further Notice of Proposed Rule Making (SFNPRM) wherein the FCC seeks to investigate possible changes to its rules which would allow AM broadcasters to better serve the public.

Introduction

CTI is a broadcast engineering consulting firm located in Marlton, New Jersey having filed comments in this proceeding. Numerous comments have been filed in the MB Docket No. 13-249 Proceeding concerning AM broadcast station allocations. These comments range from expressions of support, or disagreement without accompanying technical analysis, to numerous studies and detailed technical analysis of the impact associated with existing and proposed allocation scenarios. Review of these filings has been informative; however, CTI continues to support the specific changes to the allocation rules specified in its February 2019 Comments. These comments are summarized at the end of this document.

CTI believes that what is missing in this proceeding is an overview of other FCC initiatives that describe competition in the audio market place, minority ownership needs and new or expanding technologies which will impact how listeners receive audio content and the value of AM service itself. This information is addressed in summary form in the following pages.

MB Docket No. 18-227 Status of Competition in the Marketplace for Delivery of Audio Programming

In its December 21, 2018 Reply Comments, the NAB stated that:

> "Parties in this proceeding recognize the wide array of content providers in today's audio market beyond AM/FM stations, particularly stressing the growing marketplace presence of the myriad of online/streaming services. Commenting parties also recognize the significant impact that the development and growth of these competing audio providers, and the resulting fragmentation of the audio market, has had on the competitive position of terrestrial radio."

In NAB's 9-24-2018 Comments it stated that alternative delivery mediums included online streaming, smart speakers, smart phones and tablets in addition to car radio apps. NAB also stated:

> "Many AM stations also are experiencing significant financial hardships in today's competitive audio market. The Commission previously has recognized the "daunting technical and competitive challenges" facing AM broadcasters and the "decline in AM listenership." In addition, local AM radio stations' share of total radio OTA revenue is disproportionately small. **In 2010, AM stations collectively accounted for 14.5 percent of local radio OTA advertising revenue in the average radio market; by 2017, AM stations' revenue share had fallen to just 13.0 percent in the average market**. While some AM stations remain market leaders, these are relatively few in number. In 2017, only 22 of the top-100 earning stations across the country were AM. In the current audio marketplace, AM stations generally, like many small market radio stations regardless of service, have struggled to attract sufficient advertising revenue to ensure financial health and to support enhanced services to local audiences. As the FCC has correctly observed, radio's "ability to function in the 'public interest, convenience and necessity' is fundamentally premised on its economic viability." Emphasis added.

CTI believes that the NAB analysis of AM station revenue as only 13 percent of market revenue is a reality that supports our belief, and market observation, that most AM stations can not see a

return on investment in multi tower directional antenna systems sufficient to justify the cost. AM listenership trends for younger Americans suggest that the decline may continue. This makes it all the more important that the FCC adopt relaxed allocation standards for Class B, C and D stations allowing them to increase the size of their 2 mV/m coverage contour with Omni facilities where possible.

The other related reality is that the industry is seeing AM station listenership further decline for stations who have implemented FM translators as existing listeners move to the FM signal and in the end, FM listenership exceeds the old AM listenership. This demonstrates a clear preference by today's listeners for the clarity and consistency of FM radio signals over AM signals. The FCC should find ways to build on this trend by finding additional spectrum for fully licensed FM stations so that they can ultimately abandon their AM facility, if they so desire, eventually leaving room for AM station expansion and perhaps even transition to all digital operation. Having fewer stations in the AM Band would make future all digital facility implementation easier and less subject to interference.

GN Docket No. 16-42 Authorizing Permissive Use of the "Next Generation" Broadcast Television Standard

Those in the radio industry may see stories about Next Gen TV and ATSC 3.0 and assume that has nothing to do with them. This is an extract from the Introduction in the FCC November 20, 2017 R&O and Further Notice of Proposed Rulemaking:

"ATSC 3.0 is the new TV transmission standard developed by Advanced Television Systems Committee as the world's first Internet Protocol (IP)-based broadcast transmission platform. It merges the capabilities of over-the-air (OTA) broadcasting with the broadband viewing and information delivery methods of the Internet, using the same 6 MHz channels presently allocated for DTV service. This new TV transmission standard promises to allow broadcasters to innovate, improve service, and use their spectrum more efficiently. **It also has the potential to enable broadcasters to provide consumers with a more immersive and enjoyable television viewing experience on both home and mobile screens**. In addition, **ATSC 3.0 will allow broadcasters to offer enhanced public safety capabilities, such as geo-targeting of emergency alerts to tailor information to particular communities and emergency alerting capable of waking up sleeping devices to warn consumers of imminent emergencies, and advanced accessibility options.** With today's action, we aim to facilitate private sector innovation and promote American leadership in the global broadcast industry. " Emphasis added.

This technology does not appear to be part of what NAB addressed in its Docket No. 18-227 market analysis as it has not been widely deployed at this time. However, this technology has the potential to deliver audio and video content to cell phones using full power stations to cover large areas and through booster and LPTV stations to target local areas adding further competition for terrestrial radio broadcasters.

CTI believes that the AM broadcast community should look at new technology as a companion or supplement to traditional AM broadcast services. For example, the ability of ATSC 3.0 to address content to both large and small geographic areas may make EAS and other emergency information transmitted over Class AM stations obsolete, removing that as a matter of concern in this proceeding.

GN Docket No. 14-177 ***Use of Spectrum Bands Above 24 GHz for Mobile Radio Services***

In a statement released by Chairman Ajit Pai, the Chairman stated:

> "Pushing more spectrum into the commercial marketplace is a key component of our 5G FAST plan to maintain American leadership in the next generation of wireless connectivity. Currently, we're conducting an auction of 28 GHz band spectrum, to be followed by a 24 GHz band auction. And today, we are taking a critical step towards holding an auction of the Upper 37, 39, and 47 GHz bands in 2019. These and other steps will help us stay ahead of the spectrum curve and allow wireless innovation to thrive on our shores."
>
> "I'm pleased that the Commission is committed to making these bands available in 2019 to facilitate American leadership in 5G and provide additional opportunities for consumers across the country to access advanced wireless services. It is part of an ambitious auction schedule that will push almost five gigahertz of spectrum into the commercial marketplace in late 2018 and 2019."

This yet-to-be implemented technology is expected to further increase competition to traditional over the air delivery of audio program content and public service content. But again, CTI believes that the AM broadcast community should look at new technology as a companion or supplement to traditional AM broadcast services. For example, across the country, Everbridge Nixle service allows the public the ability to sign-up to obtain text messages on their cell phones originated from local police, fire and other public agencies warning of severe weather, criminal activities, traffic issues, missing persons and even local events. Greater high-speed internet capability will only increase the

reliability and speed with which critical information is delivered. Is there a reason that these services cannot also be delivered over the subcarrier of an FM translator or on future AM HD only stations?

Practical Issues Facing AM Broadcasters

Rising land costs, ever more complex land use regulations regarding single towers, much less multi-tower arrays, and the cost of building multi-tower AM directional antenna systems, has forced many AM broadcast stations to operate with a wire antenna or a single tower under Special Temporary Authority (STA) for significant periods of time. The simple reality is, given current economic conditions, these stations may never be able to regain their service area unless the FCC adopts more relaxed allocation standards for Class B, C and D stations.

The FCC has done a remarkable job in authorizing AM Fill-in translators. However, Chairman Pai's February 22, 2019 Remarks before The Association of Federal Communications Commission Consulting Engineers, pasted in below, describe a reality which is increasing interference between AM on FM translators and both FM translators and full-service FM stations. Below is an excerpt from the Chairman's remarks:

> "Turning the dial from television to radio, I'd like to update you on our FM translator proceeding. Our efforts to revitalize AM radio have been going well. Most notably, we've held four windows through which AM broadcasters have been able to obtain FM translators. This can help them improve their programming, expand their listenership, and stabilize their financial position, as broadcasters have told me everywhere from big cities to small-town Marysville, Kansas.
>
> But with the success of these windows has come an uptick in interference complaints from primary FM stations due to the increasing number of translators on the air. To address this concern, last May, we launched a rulemaking to streamline and expedite our current process for resolving interference complaints. Our goal is simple: to make them fewer and easier to resolve."

Our firm is working with multiple Broadcasters planning to build new FM translator facilities this

year. We know that many other firms are doing the same and unfortunately more crowding in the band will occur and inevitably more interference problems are likely. Currently it is our experience that the FCC Audio Division is handling many interference complaints which slows response and resolution. We hope that the new procedures that the FCC adopts in MB Docket No. 18-119, to address interference complaints, will help resolve interference but recognize that the rule change could result in some stations having to live with new interference or needing to reduce the size of their translator coverage area.

Some commenters have included translator coverage in their analysis of small station AM Improvements. Given that translators are secondary facilities which could be displaced at any time, or their service areas impacted by interference or forced power reduction, it is our belief that translator coverage should not be a factor in the consideration of AM Improvement benefits.

As much as FM translators offering AM fill-in service are a tremendous boom to AM stations in terms of increased listenership this is not an improvement to the AM service. It instead has highlighted a strong preference by radio listeners for program content delivered over an FM signal as compared to an AM signal. It is suggested that the industry would benefit from the FCC moving forward by:

1. Determining if there is a way that AM on FM translators can be protected more than they are today from displacement so that the FM service will be more secure.
2. Considering the shared use of TV CH 5 and CH 6 spectrum in the U.S. for FM radio service where AM stations could obtain a permanent license with a larger footprint.

Finally, we have the matter of minority ownership. Minority population density per square kilometer is generally greater near urban centers than in rural areas. Radio station values are generally higher in urban areas making it more difficult for minorities to buy viable AM stations. If the FCC adopts more relaxed allocation standards for Class B and D stations, these stations are likely to be able to increase the size of their 2 mV/m coverage contour with Omni facilities becoming viable services by meeting the needs and interests of minority communities.

Alternative Spectrum

Modification of the allocation rules to help Class B, C and D stations has effectively been stalled for over 3 years due to concerns of Class A stations. We hope that the efforts put forth by the Commission to resolve these concerns are sufficiently compelling in the Comments and Reply Comments in this proceeding. If not, we suggest that the FCC revisit the MMTC Radio Rescue Petition for Rulemaking, MB Docket No. 09-52, which proposed, in part, the use of Channels 5 and 6 for radio broadcasting by AM stations.

The FCC LMS database lists only seven full service TV stations on CH 6 in the continental United States. There are some Canadian stations. Mexico has chosen not to use CH 6 for DTV.

WRGB	Schenectady, NY
WPVI-TV	Philadelphia, PA
WCES-TV	Wrens, GA
WABW-TV	Pelham, GA
KBSD-DT	Ensign, KS
KWNB-TV	Hayes Center, NE
KTVM-TV	Butte, MT

The FCC LMS database lists only fifteen full service TV station on CH 5 in the United States. There are some Canadian stations. Mexico has chosen not to use CH 5 for DTV.

KHSD-TV	Lead, SD
KNHL	Hastings, NE
KOBI	Medford, OR
KRCB	Cotati, CA
KVCR-DT	San Bernardino, CA
KXGN-TV	Glendive, MT
KXLF-TV	Butte, MT
WBKP	Calumet, MI
WDTV	Weston, WV
WGVK	Kalamazoo, MI

WIWN	Fond Du Lac, WI
WLMB-TV	Toledo, OH
WMC-TV	Memphis, TN
WMDE	Dover, DE
WNYB	Jamestown, NY

It has been ten years since the MMTC Radio Rescue Petition for Rulemaking, MB Docket No. 09-52, was filed. In the intervening time period, we have seen a number of industry changes:

1. Ongoing erosion of AM Radio listenership.
2. Thousands of AM on FM fill-in translator construction permits granted and constructed almost universally increasing AM station listenership via the public's clear desire to listen to program content delivered over an FM station.
3. Innovation at the FCC by seeking to implement more shared use of spectrum. Greater acceptance of the use of shared CH 5 and CH 6 TV spectrum and FM spectrum and accumulation of wisdom and experience in doing that well.
4. Rapid technology advances including the development of software defined radio ("SDR") allowing the manufacturer of high-performance receivers over a frequency range starting in the AM band, covering TV CH 5 and 6 spectrum and the full FM band that fit in the palm of your hand. These receivers can decode AM and FM analog signals and multiple digital signals in software without the need for expensive dedicated chip sets as was required in the past.

Because of these changes, CTI believes that investigating the use of CH 5 and CH 6 for FM broadcasting would be in the public interest as it could allow AM stations to migrate to a full service, totally protected frequency having superior service to an FM translator. Once stations have migrated, more room would be left in the AM band for stations to expand their signals, mostly with Omni antennas or very simple AM DA patterns. Audio devices are clearly digital today and transmission of program content in digital form as part of a long-term transition plan would seem to be wise. The 88 – 108 MHz band is partly there already as more and more full service stations find themselves using their HD2, 3 and 4 channels for unique, digital only content.

Conclusion

For the reasons previously expressed in our Comments we set forth the following:

1. Modify 73.37 so that Class A stations are protected to their 0.5 mV/m daytime groundwave contour by co-channel stations and to their 2 mV/m contour by first adjacent channel stations.
2. Revise paragraph (a) of Section 73.37 to read as follows:

§ 73.37 Applications for broadcast facilities, showing required.

(a) * * *

Frequency Separation (kHz)	Contour of proposed station (classes B, C and D) (mV/m)	Contour of any other station (mV/m)
0	0.025 0.100 2.0	0.500 (Class A) 2.0 (Other classes) 0.100 (Other classes)
10	2.0 2.0	2.0 (Class A) 2.0 (Other classes)
20	25.0	25.0 (All classes)

3. Critical Hours Proposal, Adopt Alternative 2 of the SFNPRM. Continuing to protect the significant daytime service area of Class A stations from co-channel interference out to the 0.5 mV/m groundwave contour during critical hours is believed necessary to maintain daytime service to rural areas. Calculations should be done on a site-to-site basis to simplify the calculation process.

4. Nighttime Hours Proposal, Alternative 2 of the SFNPRM should be adopted. We support this proposal as it reflects real world RSS interference conditions rather than protection to the 0.5 mV/m groundwave contour which, in many cases, is subject to interference. Calculations should be done on a site-to-site basis to simplify the calculation process. Since we proposed that 1st adjacent channel skywave interference calculations should no longer be required to Class B stations 1st adjacent skywave interference to Class A stations must also be deleted from the rules.

5. RSS Nighttime Calculation Methodology & Change in Daytime Protection to Class B Stations
As stated in the SFNPRM, "The AMR FNPRM included a tentative conclusion to roll back 1991 rule changes pertaining to calculation of nighttime RSS values of interfering field strengths and nighttime interference-free service. The item also proposed a return to predicting the nighttime interference-free coverage area using only the interference contributions from co-channel stations and the 50 percent exclusion method. The Commission found that the interference reduction the 1991 rule changes achieved was small compared to the resulting impediment the rules placed on AM stations' ability to make signal improvements." Emphasis added.

CTI, and many of its clients agree with the Commission's tentative conclusion that the change in nighttime protection requirements implemented in MM Docket No. 87-267 has severely limited station coverage at night, therefore, portions of the 73.182 rules in place prior to MM Docket No. 87-267 should be restored. This would result in co-channel interference calculations based on other co-channel stations only and interference calculated using the 50% RSS basis.

6. Daytime and Night Proposed Allocation Changes as Found in 73.182(o).
The above changes can be summarized by reference to Rule Section 73.182(o) which should look like this:

Class of station	Class of channel used	Signal strength contour of area protected from objectional interference (uV/m)		Permissible interfering signal (uV/m)	
		Day - GW	Night - GW	Day - GW	Night
A	Clear	SC 500 AC 2000	SC 500 AC 2000	SC 25 AC 2000	SC 25 SW Not presc.
B	Regional	2000	2500 or NIF if >	SC 100 AC 2000	20:1 10% SW Not presc.
C	Local	2000	Not presc.	SC 100	Not presc.
D	Regional	2000	Not presc.	SC 100 AC 2000	Not presc. Not presc.

We again thank the Commission for continuing a proceeding that has, and continues to have, the potential to help many AM broadcasters to more effectively serve the public. We note that support for timely adoption of the changes addressed by the Commission in paragraphs 15 and 16 of the SFNPRM have more potential to allow AM stations to improve their signal, and/or reduce the complexity of their AM directional antenna systems, than any other changes being proposed by the Commission.

Respectfully submitted,

Communications Technologies, Inc.

By: _____

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March 8, 2019